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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/505,319 | 03/14/2005 | Keith Robert Calder | 282507US8XPCT | 5169 |

22850 7590 04/28/2008
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| EXAMINER | |
|---|---|
| BEKELE, MEKONEN T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 4142 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 04/28/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/505,319 | CALDER ET AL. | |
| | Examiner | Art Unit | |
| | MEKONEN BEKELE | 4142 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *20 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/20/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. Claims 1-15 are pending in this application.

2. Claims 1, 5, 7-10 are amended on 08/20/2004

## Priority

3. Acknowledgement is made of the applicant's claim for foreign priority under 35U.S.C 119(a)-(d) based on the United Kingdom Patent Application 0204237.2 filed on 02/22/2002. The certified copy has been field in Parent Application No.10505319, filed on 03/14/2005

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 11 and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows.

In view of applicant's discloser, specification page 6 lines 15-17, the medium is not limited to tangible embodiment, instead being defined as including "**a data carrier bearing signal**", and further, claims 11, and 15 specifically directed to a recordable data medium and modulated "**a carrier signal",** as such, in the specification, examiner unable to find " **any computer readable storage medium** " defined, furthermore the claims 11 and 15 are not limited to a statutory subject matter and is therefore non- statutory. .

Hence, claims 11 and 15 are rejected under 35 USC 101 as " non- statutory" because an article comprising " **a data carrier bearing signal"** that lack storage on a suitable computer – readable medium are not able to realize any functionality and are thus not statutory.
finely " **<u>CARRIER SIGNAL " signal- bearing medium ARE NOT STATUTORY</u>**

**For "General Analysis for determining patentability Eligibility subject Matter "see101 Interim Guidelines as indicated below**

<< http:// www. Uspto.gov./web/offices/pac/dapp/ogsheet/.html">>

**See MPEP 8th edition Rev. Sept. 2007**

**NO NEW SUBJECT MATTER should be entered**

## Drawings

4. The drawings are filed on 08/20/2004, are **accepted** for examination.

## Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claim 4 and 13 are rejected under 35 U.S.C 102(e) as being anticipated by Shoda et al. [hereafter Shoda ], US Patent No. 7,149,350 B2 filed on Sep.19, 2000**

6. As to claim 4, Shoda teaches "**A colour processor operable to process input pixels, each comprising three colour component signal samples, to produce output colour component signal samples"** [col. 3 lines 44-46, col. 4 lines 12-14]. Shoda specifically teaches an image compression apparatus that comprises a color transforming section (Fig.9 legend 11) that receives a RGB color component signals as input and generate a luminance signal Y and two chrominances signals U and V. Further the color image signal is divided into image blocks in units of 8.times.8 pixels. The "**three colour component"** corresponds to the RGB signals, the **"output colour component signal"** corresponds to YUV signals. .

**"said colour processor being operable to receive first and second input pixels and to generate from each said pixel a corresponding luminance value from the corresponding three colour component samples of each pixel respectively"** [col. 3 lines 44-46, col. 4 lines 12-14]. Shoda specifically teaches a color transformation section that transforms the RGB signal to in to YUV color component signal where Y is the luminance part of the transformed color signal. Further the color image signal is divided into image blocks in units of 8X8 pixels. Therefor color transformation section generates one luminance value Y for each pixel in the block. The "**luminance value from the corresponding three colour component"** corresponds to the value of Y.

7. As to claim 13, Shoda teaches **" A method of processing input pixels representative of a colour image, each pixel comprising three colour component signal samples, to produce output colour component signal samples"** [ col.4 lines 1-10]. Shoda specifically teaches an image compression method that receives RGB signals and transform the RGB signal into YUV signals. The " **three colour component"** corresponds to the RGB signals, the **"output colour component signal"** corresponds to YUV signals. .

**"receiving first and second input pixels and generating from each pixel a corresponding luminance value from the three colour component samples of the pixel" "** [page 3 lines 44-46, page 4 lines 12-14]. Shoda specifically teaches a color transformation section that transforms the RGB signal to in to YUV color component signal where Y is the luminance part of the transformed color signal. Further the color image signal is divided into image blocks in units of 8X8 pixels. Therefor color transformation section generates one

luminance value Y for each pixel in the block. The "**luminance value from the corresponding three colour component"** corresponds to the value of Y.

"**forming first and second output chrominance values for said first and second pixels by calculating from each of the colour components of each pixel first and second chrominance values,"** "[col. 4 lines 12-20]. Shoda specifically teaches a color region judging section (Fig.1 legend 11), where the color region is judged from the chrominance signal UV and the judgment information is output for judging the color region of the color image

**"and second output chrominance values respectively, said output colour component signal samples being formed for said first and second input pixels from said corresponding luminance values for each pixel and said first and second output chrominance values**" [col. 4 lines 12-20]. Shoda teaches color region judgment method averages the UV values of each pixel of the block-divided image, respectively, and uses them as a representative value of the block image. "**averaging first and second chromincance values for each pixel"** corresponds to averages the UV values of each pixel of the block-divided image.

## Claim Rejections - 35 USC § 103

The following is a quotation of the 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained thought the invention is not identically disclosed or described as set forth in section 102 of this title, if the difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**8. Claims 1-3, 5, 10-12, 14-15 are rejected under 35 U.S.C 103(a) as being unpatentable over Shoda et al. [hereafter Shoda ], US Patent No. 7,149,350 B2 filed on Sep.19, 2000, view of Yoshiko Hozumi [hereafter Hozumi], US Patent No. 5,621,189 published on Apr. 15, 1997**

9. As to claim 1, Shoda teaches "**An image processing apparatus operable to reproduce pixels representative of a colour image from groups of colour component signal samples representing the image**,"[col. 3 lines 44-46, col. 4 lines 12-14]. Shoda specifically teaches an image compression apparatus that comprises a color transforming section (Fig.9 legend 11) that receives a RGB color component signals as input and generate a luminance signal Y and two luminance signal Y and two chrominances signals U and V. Further the color image signal is divided into image blocks in units of 8.times.8 pixels. The **"apparatus operable to reproduce pixels representative of a colour image from groups of colour component signal**" corresponds to the color transformation section (Fig.9 legend 11).

**"each of said groups representing two of said pixels and comprising two input luminance values, one for each pixel, and first and second input chrominance values formed by averaging first and second chromincance values for each pixel"** [col. 4 lines 12-20]. Shoda specifically teaches a color region judging section( Fig.1 legend 11), where the color region is judged from the chrominance signal UV and the judgment information is output for judging the color region of the color image. [col. 4 lines 1-20]. The color region judging section receives the RGB color components and transform in the YUV using a predetermined calculations, where Y is the luminance component while U and V are the chrominance components (col.4 lines 1-50. Further color region judgment method averages the UV values of

each pixel of the block-divided image, respectively, and uses them as a representative value of the block image (col.4 lines 25-20). "**averaging first and second chromincance values for each pixel"** corresponds to averages the UV values of each pixel of the block-divided image

**"a de-compressing processor operable to receive said groups of colour component signal samples and to generate reproduced pixels, each comprising three colour component values**"[col.2 lines 17-20]. Shoda teaches a decompressing apparatus for decompressing and outputting the color image signal. Shoda specifically teaches decompressing apparatus that comprise color space transforming section (fig 8. legend 66) that receives YUV-transformed image data and converted to the original RGB signal. The "**receive said groups of colour"** corresponds to the YUV-transformed image data, the **"three colour component values"** corresponds to the RGB signal.

**to reproduce the three colour components of each pixel from the corresponding input luminance value and the assigned first and second chrominance values, and otherwise**

**to reproduce the three colour components of each pixel from the corresponding input luminance value in combination with the first and second input chrominance values."** [col. 8 lines 5-10]. Shoda specifically teaches a color transformation section (Fig.12 legend 86) that transforms the YUV signals in to the RGB original image signal. "**to reproduce the three colour components of each pixel from the corresponding input luminance value and the assigned first and second chrominance values"** corresponds to transform the Y luminance value and the UV chrominance values to RGB components using color transformation section.

However it is noted that Shoda does not teaches **"a detail detection processor operable to detect whether one of said first and second pixels is representative of substantially white or substantially black and the other of said pixels is not representative of substantially white or substantially black, and if so, arranging for said de-compressing processor**

**to assign to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero,**

**to assign to first and second chrominance values for the other of said first and second pixels, not representing substantially white or black, twice the value of the first and second input chrominance values respectively,"**

On the other hand Hozumi teaches " **a detail detection processor operable to detect whether one of said first and second pixels is representative of substantially white or substantially black and the other of said pixels is not representative of substantially white or substantially black**" [ Fig. 6, Fig. 7, col. 5 lines 18-25, col. 10 lines 9-15]. Hozumi specifically teaches equi -luminance plane or line where the image is a boundary is divided into a bright and a dark region according to a luminance threshold value. Further Hozumi teaches a la black pixel plane (or line) whose luminance is lower than the equi -luminance plane and a white pixel plane (line) whose luminance is higher than the equi -luminance plane. The **"first and second pixels is representative of substantially white or substantially black"** corresponds to pixels that lie on the white pixel plane and the black pixel plane respectively. The **"pixels is not representative of substantially white or substantially black"** corresponds to pixels that lie on the on the equi -luminance plane.

**"to assign to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero, to assign to first and second chrominance values for the other of said first and second pixels, not representing substantially white or black, twice the value of the first"** [col. 22 lines 62-68, col. 23 lines 1-10]. Hozumi teaches a method of determining the chrominance components (u1, v1) at current point (x1, y1) and chrominance components (u2, v2) at the succeeding feature point (x2, y2) of each loop on the equi – luminance line. Further, Hozumi teaches an allowable set unit (Fig. 28 legend 61) that continues a set of allowable chrominance values. When the difference chrominance components (u1, v1) between chrominance components (u2, v2) doesn't exceed the allowable value the chrominance components value (u1, v1) are used as they are. The **" first and second chrominance values"** corresponds chrominance components (u1, v1) and (u2, v2).The "**first and second chrominance values for one of said first and second pixels"** corresponds to the chrominance components (u1, v1) at current point (x1, y1) and chrominance components (u2, v2) at the succeeding feature point (x2, y2), where (x1,y1) and (x2 y2) are the location of the current pixel and succeeding pixel. **to assign " to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero"** corresponds to when the difference chrominance components (u1, v1) and chrominance components (u2, v2) doesn't exceed the allowable value the chrominance components value (u1, v1) are used as they are. Similarly the "**to assign to first and second chrominance values for the other of said first and second pixels, not representing substantially white or black, twice the value of the first"** corresponds to when the difference chrominance components (u1, v1) between

chrominance components (u2, v2) exceed the allowable value the chrominance components value (u2, v2) are adopted as a new representative.

It would have been obvious to one the ordinary skill in the art at the time of applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method of Hozumi to the Image compression apparatus, image depression apparatus and method thereof of Shoda, because both Hozumi and Shoda are directed to Image compression and decompression (Shoda: abstract, Hozumi: abstract), more specifically Shoda is directed to Image compression and decompression that include a color region judging section ( col. 1 lines 55-60) , while Hozumi is directed to Multidimensional multi-valued color image compression and decompression system based on the concept of equi-luminance plane.

One of ordinary skill in the art at the time the applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method that generate robust compressed and decompressed data information(Hozumi: col. 1 lines 10-17) in to the Image compression apparatus, image depression apparatus and method thereof of Shoda, because that would have allowed user of Shoda to obtain a high efficiency color image compression without generating an abnormal luminance distribution on the image(col. 28 lines 32-34).

Thus, it would have been obvious to one skilled in the art to apply the Multidimensional multi-valued color image compression and decompression method directed to a color image compression and decompression to improve the acquisition and transmission of compressed image, thus improving quality and reliability of mult- colored based image compression and decompression performance.

10. As to claim 2, Hozumi teaches "**said detail detection processor is operable to compare first and second input luminance values of each group with white and black threshold values, each representative of substantially white and substantially black luminance values respectively and to determine whether one of said pixels is representative of substantially white or substantially black** [Fig. 2, col. 15 lines 62-68, col. 16 lines 20-22, col.10 lines 9-16]. Hozumi specifically teaches a magnitude comparator unit ( Fig.2 legend 51) that compare a digital luminance signal to a specific luminance threshold applied by a luminance threshold setting section ( Fig. 2 legend 52).The luminance signal is applied to a specific luminance level extraction section ( Fig.2 legend 5). The luminance level extraction section extract black pixel from low luminance plane and white pixel from high luminance plane (col. 16 lines 20-22, col. 10 lines 9-16). **"substantially white and substantially black luminance values respectively"** corresponds to the pixel values in the low luminance plane and high luminance plane respectively, the **"white and black threshold values"** are included in threshold setting unit.

**"other of said pixels is not representative of substantially white or substantially black, in accordance with the result of the comparison"**[col. 5 lines 18-25]. Hozumi specifically teaches equi -luminance line (plane) where the image is a boundary is divided into a bright and a dark region according to a luminance threshold value. " **pixels is not representative of substantially white or substantially black"** corresponds to pixel value that lie on the equi -luminance line.

11. As to claim 3, Hozumi teaches "**determining whether said first input luminance value exceeds said white threshold value or said first input luminance value is less than said black threshold value, and determining whether said second input luminance value exceeds said white threshold value or said second input luminance value is less than said black threshold value**" [col. 15 lines 62-68,] Hozumi specifically teaches a luminance threshold comparator unit that compare a luminance signal with a predetermined threshold value. The predetermined threshold values are generated by a luminance threshold setting unit and that include that include eight threshold values, further the luminance threshold values are the value of equi- luminance line or plane. The equi- luminance plane is a plain that separate a black pixel region ( low luminance region) from a white pixel region ( high luminance plane).

**"form first and second output chrominance values from said first and second input pixels by calculating from each of the colour components of each pixel first and second chrominance values,"**[col. 4 lines 1-20]. Shoda specifically teaches a color region judging section (Fig.1 legend 11). The region judging section receives the RGB color components and transform in the YUV using a predetermined calculations, where Y is the luminance component while U and V are the chrominance components (col.4 lines 1-50.

**and averaging the values of the first chrominance values for the first and second input pixels and averaging the second chrominance values for the first and second pixels, to produce said first and second output chrominance values respectively**" [col. 4 lines 1-20]. Shoda specifically teaches a color region judging section color region judgment method averages the UV values of each pixel of the block-divided image, respectively, and uses them as a representative value of the block image (col.4 lines 25-20). "**averaging first and**

**second chromincance values for each pixel"** corresponds to averages the UV values of each pixel of the block-divided image

"**said output colour component signal samples being formed for said first and second pixels from said corresponding luminance value for each pixel and said first and second output chrominance values.**"[Fig. 8 col. 8 lines 4-10]. Shoda specifically teaches a color transformation section (Fig. 8 legend 66) the transform the YUV signal into the RGB signal. The "**output colour component signal"** corresponds to the RGB signals, the "**luminance value:** corresponds to the value of Y, the "**chrominance values"** corresponds to the value of U and V.

12. As to claim 5, Shoda teaches **" a de-compressing processor operable to receive said groups of colour component signal samples and to generate reproduced pixels, each comprising three colour component values,"**[col.2 lines 17-20]. Shoda teaches a decompressing apparatus for decompressing and outputting the color image signal. Shoda specifically teaches decompressing apparatus that comprise color space transforming section ( fig 8. legend 66) that receives YUV-transformed image data and converted to the original RGB signal. The "**receive said groups of colour"** corresponds to the YUV-transformed image data, the **"three colour component values"** corresponds to the RGB signal

**"to reproduce the three colour components of each pixel from the corresponding input luminance value and the assigned first and second chrominance values, and otherwise to reproduce the three colour components of each pixel from the**

**corresponding input luminance value in combination with the first and second input chrominance values, wherein input pixels” [**col. 8 lines 5-10]. Shoda specifically teaches a color transformation section (Fig.12 legend 86) that transforms the YUV signals in to the RGB signal. to return to the original color image. “**to reproduce the three colour components of each pixel from the corresponding input luminance value and the assigned first and second chrominance values”** corresponds to transform the Y luminance value and the UV chrominance values to RGB components using color transformation section. The color transformation reproduce the RGB values as combination with the first and second input chrominance values U and V and the luminance value Y.( col4. line 5-10) using a predetermined formula.

**“a de-compressing processor operable to receive said groups of colour component signal samples and to generate reproduced pixels, each comprising three colour component values**”[page 2 lines 17-20]. Shoda teaches a decompressing apparatus for decompressing and outputting the color image signal. Shoda specifically teaches decompressing apparatus that comprise color space transforming section (fig 8. legend 66) that receives YUV-transformed image data and converted to the original RGB signal. The “**receive said groups of colour”** corresponds to the YUV-transformed image data, the **"three colour component values”** corresponds to the RGB signal.

However it is noted that Shoda does not teaches **“A display device comprising a display, a display memory, a colour processor”;**

**“A colour processor operable to process input pixels, each comprising three colour component signal samples, to produce output colour component signal samples**

**a detail detection processor operable to detect whether one of said first and second pixels is representative of substantially white or substantially black and the other of said pixels is not representative of substantially white or substantially black, and if so, arranging for said de-compressing processor**

**to assign to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero,**

**to assign to first and second chrominance values for the other of said first and second pixels, not representing substantially white or black, twice the value of the first and second input chrominance values respectively,"**

On the other hand Hozumi teaches "**A display device comprising a display, a display memory, a colour processor;"**[Abstract Fig. 5 legend 25, col.27 lines 21-28]. Hozumi specifically teaches a TV monitor to display a color image, an image memory, and an image compression and decompression device. The **"color processing"** corresponds to compression and decompression device (see fig. 5)

**" a detail detection processor operable to detect whether one of said first and second pixels is representative of substantially white or substantially black and the other of said pixels is not representative of substantially white or substantially black**" [ Fig. 6, Fig. 7, col. 5 lines 18-25, col.10 lines 9-15]. Hozumi specifically teaches equi -luminance plane or line where the image is a boundary is divided into a bright and a dark region according to a luminance threshold value. Further Hozumi teaches a la black pixel plane (or line ) whose luminance is lower than the equi -luminance plane and a white pixel plane ( line) whose luminance is higher than the equi -luminance plane. The **"first and second pixels is**

**representative of substantially white or substantially black"** corresponds to pixels that lie on the white pixel plane and the black pixel plane respectively. The **"pixels is not representative of substantially white or substantially black"** corresponds to pixels that lie on the on the equi -luminance plane.

**"to assign to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero, to assign to first and second chrominance values for the other of said first and second pixels, not representing substantially white or black, twice the value of the first"**[col. 22 lines 62-68, col. 23 lines 1-10]. Although Shoda suggest "**to first and second chrominance values**" (col.4 lines 1-3).

On the other hand Hozumi teaches a method of determining the chrominance components (u1, v1) at current point (x1, y1) and chrominance components (u2, v2) at the succeeding feature point (x2, y2) of each loop on the equi – luminance line. Further, Hozumi teaches an allowable set unit (Fig. 28 legend 61) that includes a set of allowable chrominance values. When the difference chrominance components (u1, v1) between chrominance components (u2, v2) doesn't exceed the allowable value the chrominance components value (u1, v1) are used as they are. The **" first and second chrominance values"** corresponds chrominance components (u1, v1) or (u2, v2).The "**first and second chrominance values for one of said first and second pixels"** corresponds to the chrominance components (u1, v1) at current point (x1, y1) and chrominance components (u2, v2) at the succeeding feature point (x2, y2), where (x1,y1) and (x2 y2) are the location of the current pixel and succeeding pixel. **to assign " to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero"** corresponds to when the

difference chrominance components (u1, v1) and chrominance components (u2, v2) doesn't exceed the allowable value the chrominance components value (u1, v1) are used as they are. Similarly the "**to assign to first and second chrominance values for the other of said first and second pixels, not representing substantially white or black, twice the value of the first"** corresponds to when the difference chrominance components (u1, v1) between chrominance components (u2, v2) exceed the allowable value the chrominance components value (u2, v2) are adopted as a new representative.

" **input plxels representative of a colour image are fed to said colour processor and groups of signal samples representing said pixels produced by said colour processor are stored in said a display memory,"** [ Fig. 30, col.27 lines 21-25]. Hozumi specifically teaches a luminance memory that supply a luminance signal and a (Fig. 30 legend 22) and a color memory that supply a chrominance signal.

**"and said groups of signal samples are read out from said display memory and processed by said mage processing apparatus to generate reproduced pixels before being displayed by said a display device"** [ Fig. 30, col.27 lines 21-25]. Further Hozumi teaches a video signal generator that receives the luminance signal and chrominance signal and generate a video signal. The video signal is displayed on a monitor TV. The **"display memory"** corresponds to the color memory and the luminance memory. The "**mage processing apparatus"** corresponds to the video signal generator; the "**display device"** corresponds to the monitor TV.

It would have been obvious to one the ordinary skill in the art at the time of applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method of Hozumi to the Image compression apparatus, image depression apparatus and method thereof of Shoda, because both Hozumi and Shoda are directed to Image compression and decompression (Shoda: abstract, Hozumi: abstract), more specifically Shoda is directed to Image compression and decompression that include a color region judging section ( col. 1 lines 55-60) , while Hozumi is directed to Multidimensional multi-valued color image compression and decompression system based on the concept of equi-luminance plane.

One of ordinary skill in the art at the time the applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method that generate robust compressed and decompressed data information(Hozumi: col. 1 lines 10-117) in to the Image compression apparatus, image depression apparatus and method thereof of Shoda, because that would have allowed user of Shoda to obtain a high efficiency color image compression without generating an abnormal luminance distribution on the image( col. 28 lines 32-34).

Thus, it would have been obvious to one skilled in the art to apply the Multidimensional multi-valued color image compression and decompression method directed to a color image compression and decompression to improve the acquisition and transmission of compressed image, thus improving quality and reliability of mult- colored based image compression and decompression performance.

13. As to claim 10, Hozumi teaches "**A signal representative of the pixels of an image as processed by the image processing apparatus**" [ col. 21 lines 3-10]. Hozumi specifically teaches an image signal decompressed and compressed through the signal processing circuits. The **"signal representative of the pixels of an image"** corresponds to the image signal, the **"image processing apparatus"** corresponds to the signal processing circuits that carry out image compression and decompression.

14. As to claim 11, Shoda teaches "**A data carrier bearing the signal**"[Abstract]. Shoda specifically teaches the a color image singles that carry an image data.

15. As to claim 12, Shoda teaches **"A method of processing a colour image to reproduce pixels representative of the colour image from groups of colour component signal samples representing the image,"** [col. 3 lines 44-46, col. 4 lines 1-20]. Shoda specifically teaches an image compression method that comprises a color transforming section. The color region judging section ( Fig.1 legend 11) receives the RGB color components and transform in the YUV using a predetermined calculations, where Y is the luminance component while U and V are the chrominance components (col.4 lines 1-50)of the color image.

**"each of said groups representing two of said pixels and comprising two input luminance values, one for each pixel, and first and second input chrominance values formed by averaging first and second chromincance values for each pixel"** [col. 3 lines 44-46, col. 4 lines 1-20]. Further Shoda teaches a color region judgment method that averages the UV values of each pixel of the block-divided image, respectively, and uses them as a representative value of the block image (col.4 lines 25-20). "**averaging first and second**

**chromincance values for each pixel"** corresponds to averages the UV values of each pixel of the block-divided image

**"generating three colour components for each of said first and second reproduced pixels from the input luminance values and the assigned chrominance values, and otherwise "** [col. 8 lines 5-10]

**generating three colour components of each of said first and second reproduced pixels from the corresponding input luminance value in combination with the first and second input chrominance values"** [col. 8 lines 5-10]. Shoda specifically teaches a color transformation section (Fig.12 legend 86) that transforms the YUV signals in to the RGB signal to return to the original color image. "**to reproduce the three colour components of each pixel from the corresponding input luminance value and the assigned first and second chrominance values"** corresponds to transform the Y luminance value and the UV chrominance values to RGB components using color transformation section. The color transformation reproduce the RGB values as combination with the first and second input chrominance values U and V and the luminance value Y.( col4. line 5-10) using a predetermined formula.

However it is noted that Shoda does not teaches "**detecting whether one of said first and second pixels is representative of substantially white or substantially black and the other of said pixels is not representative of substantially white or substantially black, and if so reproducing to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero, and**

**reproducing to first and second chrominance values for the other of said first and second pixels the value of twice the value of the first and second input chrominance values respectively"**

On the other hand Hozumi teaches "**receiving one of said groups of signal samples representative of first and second pixels, detecting whether one of said first and second pixels is representative of substantially white or substantially black and the other of said pixels is not representative of substantially white or substantially black"** [ Fig. 6, Fig. 7, col. 5 lines 18-25, col. 10 lines 9-15]. Hozumi specifically teaches equi -luminance plane or line where the image is a boundary is divided into a bright and a dark region according to a luminance threshold value. Further Hozumi teaches a la black pixel plane (or line ) whose luminance is lower than the equi -luminance plane and a white pixel plane ( line) whose luminance is higher than the equi -luminance plane. The **"first and second pixels is representative of substantially white or substantially black"** corresponds to pixels that lie on the white pixel plane and the black pixel plane respectively. The **"pixels is not representative of substantially white or substantially black"** corresponds to pixels that lie on the on the equi -luminance plane.

**"reproducing to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero, and (**[ page 22 lines 62-68, page 23 lines 1-10)

**reproducing to first and second chrominance values for the other of said first and second pixels the value of twice the value of the first and second input chrominance values respectively"** [ page 22 lines 62-68, page 23 lines 1-10]. Hozumi teaches a method of

determining the chrominance components (u1, v1) at current point (x1, y1) and chrominance components (u2, v2) at the succeeding feature point (x2, y2) of each loop on the equi – luminance line. Further, Hozumi teaches an allowable set unit (Fig. 28 legend 61) that includes a set of allowable chrominance values. When the difference chrominance components (u1, v1) between chrominance components (u2, v2) doesn't exceed the allowable value the chrominance components value (u1, v1) are used as they are. The **" first and second chrominance values"** corresponds chrominance components (u1, v1) or (u2, v2).The "**first and second chrominance values for one of said first and second pixels"** corresponds to the chrominance components (u1, v1) at current point (x1, y1) and chrominance components (u2, v2) at the succeeding feature point (x2, y2), where (x1,y1) and (x2 y2) are the location of the current pixel and succeeding pixel. **"reproducing to first and second chrominance values for one of said first and second pixels representing substantially white or black the value of zero"** corresponds to when the difference chrominance components (u1, v1) and chrominance components (u2, v2) doesn't exceed the allowable value the chrominance components value (u1, v1) are used as they are. Similarly the "**reproducing to first and second chrominance values for the other of said first and second pixels the value of twice the value of the first and second input chrominance values"** corresponds to when the difference chrominance components (u1, v1) between chrominance components (u2, v2) exceed the allowable value the chrominance components value (u2, v2) are adopted as a new representative.

It would have been obvious to one the ordinary skill in the art at the time of applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method of Hozumi to the Image compression apparatus, image depression apparatus and method thereof of Shoda, because both Hozumi and Shoda are directed to Image compression and decompression (Shoda: abstract, Hozumi: abstract), more specifically Shoda is directed to Image compression and decompression that include a color region judging section ( page 1 lines 55-60) , while Hozumi is directed to Multidimensional multi-valued color image compression and decompression system based on the concept of equi-luminance plane.

One of ordinary skill in the art at the time the applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method that generate robust compressed and decompressed data information(Hozumi: col. 1 lines 10-117) in to the Image compression apparatus, image depression apparatus and method thereof of Shoda, because that would have allowed user of Shoda to obtain a high efficiency color image compression without generating an abnormal luminance distribution on the image( col. 28 lines 32-34).

Thus, it would have been obvious to one skilled in the art to apply the Multidimensional multi-valued color image compression and decompression method directed to a color image compression and decompression to improve the acquisition and transmission of compressed image, thus improving quality and reliability of mult- colored based image compression and decompression performance.

16 As to claim14, Shoda teaches “**A signal representative of the pixels of an image as processed by the colour processor**”[ Fig. 1 Fig 12, col. 3 lines 42-48]. Shoda specifically a color image compression and decompression proceeds carried out by different color processor units. The color processors include a color transformation section, a color judging section, a discrete cosine transformation section (DCT).

17 As to claim15, Shoda teaches “**data carrier bearing the signal**”[Abstract]. Shoda Specifically teaches a color image singles that carry an image data.

18. **Claims 6-9 are rejected under 35 U.S.C 103(a) as being unpatentable over Shoda et al. [hereafter Shoda ], US Patent No. 7,149,350 B2 published filed on Sep.19, 2000, view of Yoshiko Hozumi [hereafter Hozumi], US Patent No. 5,621,189 published on Apr. 15, 1997 as applied to claims 4 and 5 above and further in view Kirani et al. (hereafter Kiranie), US Patent No. 7,103,375 B2 filed Jan. 11, 2001.**

19. As to claim 6, Hozumin teaches **“A display device,**”[ Fig. 5 legend 25 col.21 lines 10-15]. Hozumin specifically teaches a monitor TV that display an image.

However it is noted that both Hozumin and Shoda do not teach “**said display is a Liquid Crystal Display (LCD).”**

On the other hand Kirani teaches “**said display is a Liquid Crystal Display (LCD).”** [Fig.9 legend 923, col. 16 lines 20-22]. Kirani specifically teaches a computer with liquid crystal display (LCD) monitor.

It would have been obvious to one the ordinary skill in the art at the time of applicant's invention was made to incorporate the Multidimensional multi-valued color image compression and decompression method of Hozumi to the Image compression apparatus, image depression apparatus and method thereof of Shoda, combined above on media spooler system and methodology providing efficient transmission of media content from wireless devices, because Hozum, Shoda and Kirani are directed image compression ,decompression and transmission (Shoda: abstract, Hozumi: abstract, Kirani: col. 2 lines 43-50), specifically Shoda is directed to Image compression and decompression that include a color region judging section ( Shoda: page 1 lines 55-60) , Hozumi is directed to Multidimensional multi-valued color image compression and decompression system based on the concept of equi- luminance plane, and Kirani directed to transmitting digital image from a wireless device. (col.4 lines 1-5).

It would have been obvious one of ordinary skill in the art at the time the applicant's invention was made to incorporate a View finder with liquid crystal display (LCD) monitor (Fig. 1A. legend 109, col.12 lines 48-55) into the Multidimensional multi-valued color image compression and decompression method that generate robust compressed and decompressed data information (Hozumi: page 1 lines 10-117) and the Image compression apparatus, image depression apparatus and method thereof of Shoda, because that would have allowed user of Shoda and Hozumi to enable to produce high quality digital color image in a portable device and transmit in remote location. (see Fig. 9 )

Thus, it would have been obvious to one skilled in the art to integrate a high quality digital image display device into a multidimensional multi-valued color image compression and decompression method directed to a color image compression and decompression to improve the acquisition and transmission of compressed image, thus improving quality and reliability of mult- colored based image compression and decompression performance.

20. As to claim 7, Hozumi and Shoda do not teach **"reproduced pixels generated by said image processing apparatus are converted to analogue form by an analogue-to-digital converter for display on said LCD display"** although Hozumi teaches a method of reproducing original image source and display on a monitor TV. Since the original image source signal is converted from analog to digital signal, the image signal generating unit( Fig. 30 legend 24) includes a digital to analog converter unit in order to display the reproduced original image on the monitor TV (Fig. 30 legend 25, col. 27 lines 22-30).

On the other hand Kirani teaches "**reproduced pixels generated by said image processing apparatus are converted to analogue form by an analogue-to-digital converter for display on said LCD display"** [ col.2 lines 19-25]. Kirani specifically teaches an analog digital converter (AD) that used to display an image.

21 As to claim 8, Shoda and Hozumi do not specifically teach " **A portable computing or communicating device having a display"** although Hozumi specifically teaches a monitor TV that display a color image.(col. 27 lines 22-30).

On the other hand Kirani teaches" **A portable computing or communicating device having a display**"[Fig. 9 legend 923 and 911]. Kirani specifically a portable computing such as Laptop and a portable communication device such as cellular phone.

22. As to claim 9, Hozumi and Shoda do not specifically teach " **A mobile radiotelephone having a display device"** although Hozumi teaches a monitor TV that display a color image.(col. 27 lines 22-30).

On the the other hand Kirani teaches" **A mobile radiotelephone having a display device"** [Fig. 9 legend 911]. Kirani specifically teaches a portable communication device such as a cellular phone.

## Conclusion

**The Prior art made of record**

**US Patent No. 5,621,819**

**US Patent No. 7,149,350 B2**

**US Patent No. 5,7103,357 B2**

**The prior art made of record and not relied up on is considered pertinent to applicant's disclosure**

**US Patent No. 7,257,251**

**US Patent No.6,108,048**

**US Patent No.6,535,663**

**US Patent No. 5,875,044**

**US Patent No.6,154,288**

**WO 9722206**

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Mekonen Bekele whose telephone number is 571-270-3915. The examiner can normally be reached on Monday -Friday from 8:00AM to 5:50 PM Eastern Time.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Srirama Channavajjala, can be reached on (571) 272-4108. The fax phone number for the organization where the application or proceeding is assigned is 571-237-8300. Information regarding the status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Privet PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217-919 (tool-free)

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April 16, 2008

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